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| 10/538,563 | 06/15/2005 | Edwin Rijpkema | NL021330 | 9446 |

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NXP, B.V.
NXP INTELLECTUAL PROPERTY DEPARTMENT
M/S41-SJ
1109 MCKAY DRIVE
SAN JOSE, CA 95131

| EXAMINER |
|---|
| KAO, JUTAI |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *10 June 2008*.

2a)☒ This action is **FINAL**.  2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,4-6 and 9-21* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-6 and 9-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All  b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

## DETAILED ACTION

### *Response to Amendment*

Finality of the action has been withdrawn as the applicant's argument in the amendment pointed out a lack of prima facie case of the previous action regarding independent claim 11.  A new rejection is made to the claim using the same references and this action is again made FINAL.

Amendments made to claim 4 and 19 cures the problem raised in previous claim objections.  Corresponding claim objections are withdrawn.

### *Response to Arguments*

1.      Applicant's arguments filed 06/10/2008 regarding claim rejections of independent claims 1 and 5 have been fully considered but they are not persuasive.

Regarding claim 1, the applicant again argues the limitation of "only one unit of guaranteed throughput data".  Previous action uses a "flow" to read on the unit of data. The applicant disagrees with the interpretation saying that the "flow" in the cited prior art is a "stream of multiple packets" and that the "flow" does not "pertain to a particular size of data units.  However, the claim limitation does not limit the "unit" being a size unit.  A "flow" is a unit of identifying data streams and thus reads on the claimed limitation.

Regarding claim 5, the applicant argues that the scheduling of input/output in the cited prior art does not read on the claimed limitation of a "reservation of inputs/outputs".  However, the cited prior art specifically mentioned the scheduling of the transmission of the data.  A "scheduled" transmission inherently means that the data is

to be transmitted at that particular time according to the schedule. And thus, the

particular transmission is "reserved" by the scheduling since that input/output has to be

used to transmit in accordance with the predetermined schedule.

2.      Applicant's arguments, see applicant's remark, filed 06/10/2008, with respect to

the rejection(s) of claim(s) 11 under 35 USC 103 have been fully considered and are

persuasive. Therefore, the rejection has been withdrawn. However, upon further

consideration, a new ground(s) of rejection is made in view of Karawai (US

2001/0033581), Chiussi (US 2003/0142624) and Odman (US 2003/0152059).

### *Claim Rejections - 35 USC § 103*

1.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.      Claims 1, 4-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Chiussi (US 2003/0142624) in view of Odman (US 2003/0152059).

Chiussi discloses a method for integrating guaranteed-bandwidth and best-effort

traffic in a packet network including the following features.

Regarding claim 1, a data switching device (see device 101-1 in Fig. 2)

comprising inputs (see input links 201-1 to 201-s in Fig. 2) for guaranteed throughput

and best effort data (see Fig. 5, which shows the incoming Guaranteed Bandwidth (GB)

flows 402 and Best Effort (BE) flows 405), outputs (see output links 202-j and 202-s in

Fig. 2), a data switch interconnecting the inputs and outputs (see switch fabric 250 in

Fig. 2), guaranteed throughput control means coupled for controlling a guaranteed

throughput data scheduling (see PWS 401 in Fig. 4) and best effort control means

coupled for controlling a best effort data scheduling (see SWS 404 in Fig. 4),

characterized in that the guaranteed throughput and best effort control means are

arranged for a combined control (see PWS 401, combining GB flows 402 and BE flows

via the SWS 404 in Fig. 4) such that the best effort data scheduling is based on a

contention free guaranteed throughput scheduling (see "serves the BE aggregate only

after having granted to the GB aggregate the sum of the guaranteed service shares of

the allocated GB flows" recited in paragraph [0040]); wherein the data-switching device

has at least one guaranteed throughput input buffer for at least one data switch input

(see flow queues 502 in Fig. 5); wherein the at least one guaranteed throughput input

buffer stores only one unit of guaranteed throughput data at a time (see Fig. 5, where

each flow queue 502 only carries one GB flow).

Regarding claim 4, wherein the data-switching device has one and the same

output buffer both for collecting guaranteed throughput and best effort data (see packet

RAM 607 in Fig. 6, which carries all packets to be transmitted by the packet transmitter

601, including both the GB and BE flows, as recited in paragraph [0048]).

Regarding claim 5, a data switching method (see switch fabric 250 in Fig. 2),

wherein guaranteed throughput and best effort data is scheduled for switching (see Fig.

4, which schedules both GB and BE flows using primary and secondary weighted-

round-robin schedulers (PWS and SWS) 401 and 404), characterized in that the best

effort data scheduling is based on a contention free guaranteed throughput data

scheduling (see "serves the BE aggregate only after having granted to the GB

aggregate the sum of the guaranteed service shares of the allocated GB flows" recited

in paragraph [0040]); characterized in that the guaranteed data scheduling takes one

step (see Fig. 4, where the GB flows gets scheduled by only going through the PWS

scheduling step 401); the one step involves a reservation of inputs and/or outputs (see

Fig. 4, where the PWS puts the GB flow within the subframe 407, and sending the

frame to the outgoing link, thus reserving an output link for the GB flow).

Regarding claim 6, characterized in that the best effort scheduling is performed

after the guaranteed throughput scheduling (see "serves the BE aggregate only after

having granted to the GB aggregate the sum of the guaranteed service shares of the

allocated GB flows" recited in paragraph [0040]; or see "first…the PWS 401 fulfills the

bandwidth requirements of the GB flows" and "second…the PWS 401 distributes fair

service to the plurality of BE flows" recited in paragraph [00043]).

Regarding claim 9, wherein the best effort data scheduling takes one or more

multiples of three steps, including the steps: request, grant and accept (see "the single

WRR scheduler grants 0.66 r to the GB flow that remains backlogged, while each BE

flow gets 1.66% of the capacity of the server…" recited in paragraph [0039], which

shows how the WRR scheduler grants 1.66% of the capacity to the BE flows).

Chiussi does not specifically disclose the following features: regarding claims 1

and 5, wherein the guaranteed throughput scheduling is contention free.

Odman discloses a method for handling asynchronous data in a wireless network

including the following features.

Regarding claims 1 and 5, wherein the guaranteed throughput scheduling is

contention free (see contention free period 530 in Fig. 5 which includes guaranteed time

slots 540, which are used to transmit "isochronous" data, as recited in paragraph

[0034]).

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify the system of Chiussi using features, as taught by Odman, in order

to ensure that all guaranteed bandwidth flows could be transmitted while meeting the

resource requirements.


3.      Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chiussi

(US 2003/0142624) in view of Odman (US 2003/0152059) as applied to claim 9 above,

and further in view of Hill (US 2003/0035422).

Chiussi in view of Odman disclose the claimed limitations as described above.

Chiussi and Odman do not disclose the following features: regarding claim 9,

wherein a contention resolution for said best effort data scheduling is based on bipartite

graph matching.

Hill discloses a packet switching method including the following features.

Regarding claim 10, wherein a contention resolution for said best effort data

scheduling is based on bipartite graph matching (see "scheduling of connectionless,

best-effort packets …based on maximum size and maximum weight bipartite graph

matching algorithms" as recited in paragraph [0003]).

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to further modify the system of Chiussi and Odman using features, as taught

by Hill, in order to create conflict-free connections between inputs and outputs of each

timeslot (recited in Hill, paragraph [0003]).


4.     Claim 11-13 and 16-18 and 21are rejected under 35 U.S.C. 103(a) as being

unpatentable over Karawai (US 2001/0033581) in view of Chiussi (US 2003/0142624)

and Odman (US 2003/0152059).

Karawai discloses a packet switch, scheduling device, drop control circuit,

multicast control circuit and QoS control device including the following features.

Regarding claim 11, a data switching device (see device shown in Fig. 1 and 4): a

switching matrix to switch data from a plurality of inputs to a plurality of outputs (see

switch 16 in Fig. 1); a plurality of multiplexers coupled to the plurality of inputs of the

switching matrix (see multiplexer in the plurality of input buffer sections 12, which is

connected to the matrix switch 16 as shown in Fig. 4); a plurality of best effort input

buffers coupled as inputs to the plurality of multiplexers, each of the best effort input

buffers to store best effort data (see Fig. 6, bottom queue within input buffer section 12

carries best effort class traffic); a guaranteed throughput input buffer coupled as another

input to a first multiplexer of the plurality of multiplexers, the guaranteed throughput

input buffer to store guaranteed throughput data (see Fig. 6, top queue within input

buffer section 12 carries band guaranteed class traffic); and scheduling means coupled

to the plurality of multiplexers (see scheduling sections 25 connected to the

multiplexers, as shown in Fig. 4), the scheduling control means comprising: guaranteed

throughput control means and best effort control means (see the scheduling and

selected line management in scheduler section 25 connected separately to the

bandwidth guaranteed traffic and the best effort traffic).

Regarding claim 12, a plurality of output buffers coupled to the plurality of outputs

of the switching matrix (see output buffers 18 connected to the output of the switching

matrix 16, as shown in Fig. 1), wherein each output buffer is configured to collect both

guaranteed throughput and best effort data (see output buffer 18 accepting data of QoS

1-4 in Fig 1, wherein the QoS classes 1-4 include band guaranteed class and best effort

class).

Karawai does not explicitly disclose the following features: regarding claim

11, wherein the scheduling control means comprises: guaranteed throughput control

means to schedule the guaranteed throughput data for transfer through the switching

matrix to one of the plurality of outputs of the switching matrix; and best effort control

means to schedule the best effort data fort transfer through the switching matrix to

another one of the plurality of outputs of the switching matrix, wherein the best effort

control means is further configured to schedule the best effort data based on a

contention free guaranteed throughput scheduling; regarding claim 13, wherein the

guaranteed throughput input buffer is configured to store only one unit of guaranteed

throughput data at a time; regarding claim 16, wherein the best effort control means is

further configured to schedule the best effort data after the guaranteed throughput

control means schedules the guaranteed throughput data; regarding claim 17, wherein

the guaranteed throughput control means is further configured to schedule the

guaranteed throughput data in one step; regarding claim 18, wherein the one step

comprises a reservation of at least one input of the switching matrix and or at least one

output of the switching matrix; Regarding claim 21, the data switching device further

comprises a plurality of demultiplexers coupled to the plurality of best effort input

buffers, wherein a first demultiplexer of the plurality of demultiplexers is also coupled to

guaranteed throughput input buffer, wherein the first demultiplexer is configured to

distribute data from an incoming data stream to a corresponding best effort input buffer

or the guaranteed throughput input buffer.

Chiussi discloses a method for integrating guaranteed-bandwidth and best-effort

traffic in a packet network including the following features

Regarding claim 11, guaranteed throughput control means (see PWS 401 in Fig.

4) to schedule the guaranteed throughput data for transfer (see flow gb1-gbV 402 in Fig.

4) through the switching matrix (see switch fabric 250 in Fig. 2) to one of the plurality of

outputs of the switching matrix (see link 204 connecting to the communication link

interface 200-j); and best effort control means (see SWS 404 in Fig. 4) to schedule the

best effort data (see Flow be1-beU 405 in Fig. 4) for transfer through the switching

matrix (see switch fabric 250 in Fig. 2) to another one of the plurality of outputs of the

switching matrix (see link 204 connecting to the communication link interface 200-s; that

is, the schedulers shown in Fig. 4 are part of the communication link interfaces 200-1

through 200-i, as shown in Fig. 6; and as shown in Fig. 4, each of the scheduler outputs frames including both the guaranteed flow and the best effort flow; the outputs of the communication link interfaces are then sent to the switch fabric 250 and output to the plurality of outputs of the switch fabric, shown by links 204, since each of these outputs include both the guaranteed flow and the best effort flows, therefor, the guaranteed throughput data is transfer to one of the plurality of outputs of the switching matrix and the best effort data is transfer to the same output of the switching matrix as well as all other outputs of the switching matrix), wherein the best effort control means is further configured to schedule the best effort data based on a contention free guaranteed throughput scheduling (see "serves the BE aggregate only after having granted to the GB aggregate the sum of the guaranteed service shares of the allocated GB flows" recited in paragraph [0040]).

Regarding claim 13, wherein the guaranteed throughput input buffer is configured to store only one unit of guaranteed throughput data at a time (see Fig. 5, where each flow queue 502 only carries one GB flow).

Regarding claim 16, characterized in that the best effort scheduling is performed after the guaranteed throughput scheduling (see "serves the BE aggregate only after having granted to the GB aggregate the sum of the guaranteed service shares of the allocated GB flows" recited in paragraph [0040]; or see "first...the PWS 401 fulfills the bandwidth requirements of the GB flows" and "second...the PWS 401 distributes fair service to the plurality of BE flows" recited in paragraph [00043]).

Regarding claim 17, characterized in that the guaranteed data scheduling takes one step (see Fig. 4, where the GB flows gets scheduled by only going through the PWS scheduling step 401).

Regarding claim 18, the one step involves a reservation of inputs and/or outputs (see Fig. 4, where the PWS puts the GB flow within the subframe 407, and sending the frame to the outgoing link, thus reserving an output link for the GB flow).

Regarding claim 21, the data switching device further comprises a plurality of demultiplexers (see demultiplexers in input buffer sections 12 in Fig. 4) coupled to the plurality of best effort input buffers, wherein a first demultiplexer of the plurality of demultiplexers is also coupled to guaranteed throughput input buffer, wherein the first demultiplexer is configured to distribute data from an incoming data stream to a corresponding best effort input buffer or the guaranteed throughput input buffer (see demultiplexer in Fig. 4, which distributes data into the queue sections 0-M and as shown in Fig. 6, divide the data into band guaranteed class and the best effort class).

Odman discloses a method for handling asynchronous data in a wireless network including the following features.

Regarding claims 11, wherein the guaranteed throughput scheduling is contention free (see contention free period 530 in Fig. 5 which includes guaranteed time slots 540, which are used to transmit "isochronous" data, as recited in paragraph [0034]).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Karawai using features, as taught by Chiussi and

Odman, in order to ensure that all guaranteed bandwidth flows could be transmitted while meeting the resource requirements.

5.      Claim14-15 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karawai, Chiussi and Odman as applied to claim 11 above, and further in view of Dell (US 2002/0085578).

Karawai, Chiussi and Odman disclose the claimed limitations as shown above.

Karawai, Chiussi and Odman do not disclose the following features: regarding claim 14, wherein the best effort control means is further configured to disable best effort requests corresponding to the input of the switching matrix to which the first multiplexer is coupled for a frame during which the guaranteed throughput data is transferred through the switching matrix; regarding claim 15, wherein the best effort control means is further configured to disable best effort requests corresponding to the output of the switching matrix to which the guaranteed throughput data is transferred for a frame during which the guaranteed throughput data is transferred through the switching matrix; regarding claim 19, wherein the best effort control means is further configured to schedule the best effort data and three steps, wherein the three steps comprises a request step, a grant step, and an accept step; regarding claim 20, wherein the best effort control means is further configured to schedule the best effort data using multiples of the three steps.

Dell discloses a three-stage switch fabric with buffered crossbar devices including the following features.

Regarding claim 14, wherein the best effort control means is further configured to disable best effort requests corresponding to the input of the switching matrix to which the first multiplexer is coupled for a frame during which the guaranteed throughput data is transferred through the switching matrix (see "…at most one bid from each input device, to determine which bids to grant…The bid arbitration…follows the rule…contending bids with lower priority…are rejected in favor of those with higher priority" recited in paragraph [0154], wherein the best effort data is considered lower priority than guaranteed bandwidth data; also see Fig. 18 showing that bids include both inputs and outputs of the crossbar, or switching matrix).

Regarding claim 15, wherein the best effort control means is further configured to disable best effort requests corresponding to the output of the switching matrix to which the guaranteed throughput data is transferred for a frame during which the guaranteed throughput data is transferred through the switching matrix (see "…at most one bid from each input device, to determine which bids to grant…The bid arbitration…follows the rule…contending bids with lower priority…are rejected in favor of those with higher priority" recited in paragraph [0154], wherein the best effort data is considered lower priority than guaranteed bandwidth data; also see Fig. 18 showing that bids include both inputs and outputs of the crossbar, or switching matrix).

Regarding claim 19, wherein the best effort control means is further configured to schedule the best effort data and three steps, wherein the three steps comprises a request step (see "a bid" recited in paragraph [0008]), a grant step (see "arbitrator determines whether to accept (i.e., grant)" recited in paragraph [0008]), and an accept

step (see "If a bid is accepted, then a connection is eventually established" recited in

paragraph [0008]).

Regarding claim 20, wherein the best effort control means is further configured to

schedule the best effort data using multiples of the three steps (see paragraph [0008]

explaining how each connection is scheduled using the three step of bid, grant, connect

steps; thus multiple bids would be processed by the multiple of the three steps).

It would have been obvious to one of the ordinary skill in the art at the time of the

invention to modify they system of Karawai, Chiussi and Odman using features, as

taught by Dell, in order to ensure traffic of higher priority can be transmitted.


*Conclusion*

6.      **THIS ACTION IS MADE FINAL.**  Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action.  In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action.  In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Ju-Tai Kao

/Ju-Tai Kao/
Acting Examiner of Art Unit 2616


/Kwang B. Yao/
Supervisory Patent Examiner, Art Unit 2616